Suddenly You See More—Even at Night and in Low Light

Better vision for night blindness and enhanced sight at night thanks to innovative lenses

It’s hard to make things out in the dark – so our eyes have to work overtime. Many people find it tiring to see clearly at night or in low light; some would even say they suffer from night blindness. Lenses that feature ZEISS i.Scription technology can help improve vision in low light, thus providing crisper, clearer vision at night and in low light, reduced glare effects, more vibrant colors and improved contrast perception – even when driving at night.

Come evening, our eyes are normally pretty tired from everything we put them through during the day. For those with night blindness, this can quickly lead to eye strain – especially when they’re behind the wheel. Light beams, for instance from street lamps or incoming cars, reflections like those in shop windows, and generally poor vision often compromise visibility. This causes many people to feel restricted or unsafe, making them less keen on being outdoors at night, especially during the winter and bad weather! Informally known as “night blindness” is what happens when the eyes don’t function at their best at night, meaning people see things with more difficulty than they do during the day. Vision problems that go unnoticed during the day can therefore quickly become a hindrance in poor light.

Lenses to combat night blindness?

Crisper, higher-contrast, more brilliant

Benefits for progressive lenses and other vision aids

Lenses to combat night blindness

How can we solve this problem? Lenses with i.Scription® technology take into account vision problems that have thus far gone unnoticed in the lens design. They deliver crisper, higher-contrast,
and more brilliant vision – particularly at night and in low light. They allow many people who wear eyeglasses to see better and, thanks to their much more comfortable visual perception, allow wearers to quickly feel comfortable with their first pair of glasses.

**More brilliant vision.**

![Image](image-url)

**i.Scription® technology from ZEISS – the “fingerprints” of the eyes**

To apply ZEISS i.Scription technology to lenses, your eyes are first analyzed through subjective refraction using a special computer-controlled measuring system: the ZEISS i.Profiler®. Unlike with standard procedures, this system also measures your vision when your eyes are dilated as “night pupils” and, with the help of wavefront technology, generates a comprehensive, individualized vision profile.

While that may sound complicated, it’s actually quite simple: when using wavefront technology, light waves (the “wavefront”) are cast on the eye, and the reflections of these waves are measured using tiny sensors. This helps determine all the individual features of your eyes. During the day, the pupils are smaller as more light enters the eyes. But during the night, they’re more dilated. Conventional measuring equipment can only analyze the eyes during the day. The problem is, the way the pupil changes during the night cannot be taken into account in the lens design – the enlarged pupil results in a lower depth of focus, and vision problems in the peripheral zones of the now larger pupil are added to the vision problems that can be measured when the pupils are small. So wearing conventional lenses may mean you don’t see clearly when your pupils are dilated.

This is confirmed by optometrist Jürgen Jainta from Optiker Schütz in Pforzheim, Germany, who is a big fan of this innovation. He’s convinced that only the ZEISS i.Profiler® can help him and his colleagues really determine whether a patient’s vision during the day – i.e. with smaller pupils – is the same as it is during the night with dilated pupils.

**Crisper, higher-contrast, more brilliant**

![Image](image-url)
The ZEISS i.Profiler® plus can measure over 1,500 reference points per eye in just 60 seconds.

In addition to the standard tests, which generally only measure the strength of vision during the day and at high contrast, an analysis using the ZEISS i.Profiler® plus also takes into account changes in light, contrast, reflections and colors. This allows an assessment of a person’s visual acuity under different lighting conditions and contrasts. It’s as detailed as a fingerprint, but in practice a brief look at the system reveals all: the ZEISS i.Profiler® plus uses wavefront technology via infrared light to generate a point of light on the retina analyzes the optical characteristics of the patient’s eyes. The light is subject to different deviations for each person and these are used to create a precise image of the eye and its properties. This ensures that typical visual defects (e.g. short- and far-sightedness) are identified accurately as well as any higher-order aberrations – defects which significantly influence your vision at night and at twilight. Many of these vision problems cannot be detected using conventional measuring processes, such as spherical aberrations: rays of light are more strongly refracted at the edge of a lens than in the center, which results in reduced contrast. Another higher-order aberration is the asymmetry error, whereby the rays of light are refracted in such a way that they create something like a light tail. If left untreated, both problems can result in poor vision in low light or at night.

In short, a test that combines classic subjective and objective refraction with the ZEISS i.Profiler® plus takes into account all the aspects related to vision. What’s more, while the first systems of its kind were only capable of analyzing a few sections of the eye, the ZEISS i.Profiler® plus can measure over 1,500 reference points per eye in just 60 seconds.

This results in a kind of optical map of the eyes – with plenty of information, which can improve night vision in particular.

**Customised precision lenses**

Once a precise, comprehensive eye analysis has been performed using the ZEISS i.Profiler® plus, the result is “transferred” to the lens design using the innovative ZEISS i.Scription technology. Thanks to the patented lens design technique and the information collected in addition to subjective refraction, lenses with i.Scription® technology can now be designed more in line with the wearer’s eyes. This makes it possible to precisely determine a prescription in increments of hundredths of diopters (i.e. 0.01). By way of comparison: increments of quarter diopters (i.e. 0.25) are used for conventional lenses. The technology enables the manufacture of precision lenses with the best possible corrective properties. These help enhance visual comfort not only for wearers with low-
grade night blindness, but also provide a greater feeling of safety in poor light. Thanks to their highly customized parameters, these special lenses also enable crisper, more relaxed vision during the day, as well as enhanced spatial awareness, greater contrast and greater color perception. In other words, it’s perfect for all those who wear glasses and feel they suffer from night blindness, low-grade night blindness or simply want to feel relaxed at night, in poor light and even during the day.

*Patent number: DE-102007032001B4*

**The ZEISS Online Vision Check**

How well do you see contrast and colors? Check your vision quickly and easily here!

Start the eye test now!

**Benefits for progressive lenses and other vision aids**

ZEISS i.Scription technology is also available for single vision and progressive lenses. Both versions benefit from the comprehensive eye analysis performed by the i.Profiler® and the subsequent transfer of data to the lenses using i.Scription technology. Progressive lenses that feature ZEISS i.Scription technology, for instance, boast fewer blurred areas and considerably more vision zones – in the near, intermediate and distance ranges. This makes inconveniences such as swaying effects when moving your eyes, or blurred vision, a thing of the past – which has the benefit of easy adaptation!

Optometrist Heinrich Raub on his experiences using ZEISS i.Scription: “Progressive lenses in particular boast considerably enhanced performance thanks to i.Scription technology. This more precise way of determining your values will result in greater comfort when reading at close range, and larger vision zones at a distance.”

**i.Scription – razor-sharp vision, even when driving**

ZEISS i.Scription technology can also be found in our ZEISS DriveSafe driving lenses. These lenses were developed specially for driving – during the day and night – and improve both sharpness and contrast, enhance vision in unpleasant weather and reduce any distortions within the lens periphery – particularly with progressive lenses. The end result: you can enjoy better vision and can more precisely judge viewing distances in stressful driving situations, e.g. at night or in the rain, fog or snow.

Want to know more about the unique vision we can deliver? Whether you need single vision or progressive lenses with i.Scription® technology from ZEISS, simply get in touch with your optometrist – they’ll be happy to help.

**i.Profiler® plus; tests also suitable for contact lens wearers**

Contact lens wearers can now also take advantage of an analysis performed using the i.Profiler® plus. The system determines the geometry of the cornea so precisely that your optician can recommend the perfect contact lenses for you and adjust them more precisely than ever before.
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Check your Vision Profile now!

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